REMARKS

In the Office Action, the Examiner allowed claims 37 and 38, rejected claims 1, 3-12, 14-18, 21-27 and 30-35, and objected to claims 2, 13, 19, 20, 28, 29 and 36. Claims 1-38 remain pending in the present application. The Applicants thankfully note the Examiner's acknowledgment of allowable subject matter in claims 2, 13, 19, 20, 28, 29 and 36-38 of the pending claims. Reconsideration and allowance of all pending claims are respectfully requested in view of the following remarks.

Rejections Under 35 U.S.C. § 103

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). With the foregoing legal precedents in mind, the Applicants respectfully request reconsideration and allowance of those

claims rejected on the basis of obviousness in view of the specific comments set forth below.

Independent Claims 1 and 22

In the present Action, the Examiner has rejected claims 1, 3-10, and 22-27 under 35 U.S.C. § 103(a) as being unpatentable over WO 03/032816 (the reference of Kellman et al.) and U.S. Patent No. 6, 380, 741 (the reference of Hajnal et al.). The Applicants respectfully traverse this rejection.

a. The step of "locating an edge pixel" is absent from the cited art

The Applicants respectfully note that claim 1 recites, "locating an edge pixel within one or more columns or rows of a magnetic resonance image." Similarly, claim 22 recites, "locating an edge pixel within columns or rows of [a] calibration image." The Examiner asserts that the reference of Kellman et al. discloses such a step at Fig. 4, at page 10, and in the abstract, where the different regions disclosed by the abstract are suggested, in the present case, to correspond to edge pixels.

A review of the cited passages, however, does not reveal what the Examiner alleges to be present. In particular, neither Fig. 4 nor page10 of the Kellman et al. reference discloses the act of locating an edge pixel or even the concept of an edge pixel. Furthermore, while the abstract of the Kellman et al. reference does mention different regions, it is only in the context of, "determining a plurality of different regularization matrices for a plurality of different regions of an image...." The Applicants believe that the Examiner is equating the regularization matrices of Kellman et al. with a sensitivity matrix, and thereby with the verbiage provided by the Applicants in the preambles of claims 1 and 22. However, as clearly depicted in Fig. 4, the Kellman et al. reference clearly demonstrates that the regularization matrices, Λ, are distinct from the sensitivity matrix, S.

Regardless of whether this was the intent of the Examiner or not, the Applicants respectfully contend that the referenced act of "determining a plurality of different regularization matrices for a plurality of different regions of an image" does not disclose the specific recitation of locating an edge pixel. In particular, even if the "different regions" of the abstract were equated with edge pixels, there is still no discussion or disclosure by Kellman et al. of the act of *locating* such edge pixels, as recited in claims 1 and 22. Nevertheless, if the Examiner wishes to maintain the present rejection, the Applicants respectfully request that the Examiner provide a citation to a particular passage of the Kellman et al. reference that clearly demonstrates the act of locating an edge pixel. Absent such a showing, the rejection cannot satisfy a *prima facie* case of obviousness.

The Examiner does not suggest that the reference of Hajnal et al. discloses the step of "locating an edge pixel" and, after reviewing both references, the Applicants believe this step to be entirely absent from the cited combination.

b. The step of "calculating a sensitivity function..." is absent from the cited art

Claim 1 also recites the step of: "calculating a sensitivity function describing coil sensitivity for the edge pixel based upon two or more fitting pixels inward of the edge pixel." Similarly, claim 22 recites, "calculating a sensitivity function from two or more fitting pixels disposed inward of the edge pixel...." The Examiner relies on the reference of Hajnal et al. to disclose such a step. In particular, the Examiner cites to Figs. 1 and 2 and to various passages within columns 1-4 of the reference of Hajnal et al.

A review of the cited portions of the Hajnal et al. reference, however, does not disclose the calculation of a sensitivity function, based on fitting pixels or otherwise. To the contrary, the Hajnal et al. reference, in general, appears to presuppose knowledge of the sensitivity information for the disclosed coils. For example, the Applicants refer the

Examiner to column 2, lines 38-40, 56-58, 62-63, column 3, lines 21-24, and the abstract of the reference of Hajnal et al., which reference the use of coil sensitivity information but do not discuss its origin. Furthermore, in the example provided by Hajnal et al., sensitivity information was not calculated based upon fitting pixels, as presently recited, but was instead determined by direct measurement. *See* column 4, lines 46 and 65-67, which states, "[d]ata was acquired over a 20 cm FoV in the coronal plane to *directly measure* the value of Sαβ [the complex sensitivities]." Emphasis added.

In addition, no part of the Hajnal et al. reference discusses the presence or use of edge pixels, much less the presence or use of fitting pixels inward of an edge pixel. Since the Hajnal et al. reference does not disclose either edge or fitting pixels, it also does not disclose the act of calculating a sensitivity function for an edge pixel based upon two or more fitting pixels. Therefore, even if the Hajnal et al. reference were construed to disclose the calculation of a sensitivity function, it still does not disclose the recited subject matter of claims 1 and 22. If the Examiner wishes to maintain the present rejection, the Applicants respectfully request that the Examiner provide *specific* citations demonstrating the calculation of a sensitivity function based on fitting pixels within the reference of Hajnal et al.

The Examiner does not suggest that the reference of Kellman et al. discloses the step of "calculating a sensitivity function" in the recited manner and, after reviewing both references, the Applicants believe this step to be entirely absent from the cited combination.

In view of the deficiencies of the cited combination with regard to independent claims 1 and 22 noted above, the Applicants believe that the Examiner has failed to establish a *prima facie* case for obviousness of these claims and their dependents. Therefore, the Applicants respectfully request that the Examiner reconsider

independent claims 1 and 22 and allow these claims and their dependents to proceed to issuance.

Independent Claims 11 and 30

In the present Action, the Examiner has rejected claims 11, 12, 14-18, 21, and 30-35 under 35 U.S.C. § 103(a) as being unpatenable over U.S. Patent No. 6,559, 642 (the reference of King) and Hajnal et al. reference. The Applicants respectfully traverse this rejection.

As noted in the previous response mailed on January 20, 2004, the King reference is unavailable to the Examiner as prior art. In particular, the Applicants note that the King reference, which issued on May 6, 2003, would be available as prior art only under 35 U.S.C. § 102(e)/103(a). However, Applicants respectfully point out that the King reference is unavailable as prior art under 35 U.S.C.§103(c). Applicants respectfully refer the Examiner to 35 U.S.C. § 103(c) which states:

> Subject matter developed by another person, which qualifies as prior art under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

In accordance with 35 U.S.C. § 103(c) and Pub. L. 106-113, § 4807, enacted November 29, 1999, subject matter developed by another person which qualifies as prior art only under subsection (e) of 35 U.S.C. § 102, shall not preclude patentability where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. Here, the present application and the King reference are both assigned to GE Medical Systems Global Technology Company, LLC or

subject to an obligation of assignment to GE Medical Systems Global Technology Company, LLC at the time the invention was made. Thus, the King reference is unavailable as prior art under 35 U.S.C. § 103(c). With the King reference being unavailable as prior art, Applicants respectfully submit that the rejection cannot stand because the Hajnal reference alone fails to disclose all of the recited features.

In view of the unavailability of the King reference and the deficiencies of the Hajnal et al. reference noted above, the Applicants respectfully request reconsideration and allowance of independent claims 11 and 30, and those claims depending therefrom.

Conclusion

In view of the remarks set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefore. Furthermore, Applicants authorize the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 07-0845; Order No. 112011/YOD (GEMS:0174/YOD/RAR).

Respectfully submitted,

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